

ALASKA ENERGY AUTHORITY
VILLAGE POWER SYSTEM ASSESSMENT

Community: King Cove – New Plant
Evaluation Date: Sept 15, 2012 Time Started 7:00a Completed 1:00p
Evaluator(s): Mike Dunn

*** Indicates that only one from the group shall be chosen. Otherwise choose all that apply**

Powerhouse Building

Site Location

- ☒ Site suitable for powerhouse
- ☐ < 100 feet from a public well
- ☐ < 25 feet from an eroding bank or beach, or in a flood plain

*** Foundation**

- ☒ Powerhouse on acceptable foundation (pad & post, piling, concrete, etc.)
- ☐ Powerhouse directly on gravel pad or light timbers (raised timbers, on permeable gravel)
- ☐ Powerhouse directly on tundra or natural soils (no foundation)
- ☐ Powerhouse leaning considerably or unstable foundations (seismic hazard)

*** Flooring**

- ☒ Welded steel deck plate or concrete (sealed)
- ☐ Steel deck plate or concrete (unsealed)
- ☐ Wood (sealed or painted)
- ☐ Wood (non-sealed or bare)

*** Interior Walls**

- ☒ Concrete or metal skin
- ☐ Fiberglass reinforced paneling (FRP)
- ☐ Gypsum board
- ☐ Wood (painted or sealed)
- ☐ Wood (non-painted or bare)

*** Exterior Walls**

- ☒ Concrete or metal siding
- ☐ Wood (painted or sealed)
- ☐ Wood (non-painted or bare)

*** Roof Penetration**

- ☒ None
- ☐ Properly installed (rain tight)
- ☐ Minor leaks (repairable)
- ☐ Major leaks (not repairable)

*** Ventilation**

- ☒ Proper ventilation (air intake & exhaust fans, louvers & hoods)
- ☐ Adequate ventilation (air intake & exhaust fans)
- ☐ Minimum ventilation (air intake)
- ☐ No ventilation (doors or windows have to be left open)

*** Lighting**

- ☒ Excellent lighting
- ☐ Adequate lighting
- ☐ Poor lighting
- ☐ No lighting

Security

- ☐ Powerhouse fenced in & door locks
- ☒ Door locks
- ☐ No fence
- ☐ No door locks

Generator Equipment and Installation

Diesel Engines

	Unit #1	Unit #2	Unit #3	Unit #4	Unit # 5
kW	1050kW	650kW	500kW	500kW	_____
Hours of Operation	9343	4529	1450	8367	_____

* Generator Condition

	Unit #1	Unit #2	Unit #3	Unit #4	Unit #5
Good, like new	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Fair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor, guards/covers missing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Load Sizing

- ☒ Properly sized generation to meet the community loads
- ☐ Undersized generation to meet the community loads
- ☐ Oversized generation to meet the community loads

* Load Balance

- ☒ <10% Imbalance
- ☐ 10% to 25% Imbalance
- ☐ >25% Imbalance

* Control Switchgear

- ☒ Fully automatic synchronizing switchgear
- ☐ Semi-automatic synchronizing switchgear
- ☐ Manually synchronizing switchgear
- ☐ Manual transfer switches
- ☐ Manual mounted breakers

* Electrical

- ☒ Wiring appears appropriate
- ☐ Exposed wiring, improper grounding, missing covers etc.

* Fuel System Inside Powerhouse

- ☒ Welded piping
- ☐ Welded & threaded piping
- ☐ Threaded piping
- ☐ Rubber hose

Fuel System Appurtenances

- ☒ No day-tank
- ☐ Additional for active leaks

Totalizing & Station Service Meter

- ☒ Properly installed and working totalizing & station service meter
- ☐ No totalizing meter
- ☐ No station service meter

*** Fuel Meter**

- ☒ Properly installed & working fuel meter **Currently inop- waiting for probe**
☐ No fuel meter

Environmental

Interior of Powerhouse

- ☒ Clean, well-kept
☐ Old generator part stored inside facility
☐ Waste oil stored inside facility
☐ Apparent oil spills

Under Facility

- ☒ Clean, well-kept
☐ Old generator part stored under facility
☐ Waste oil stored under facility
☐ Apparent oil spills

Surrounding of Powerhouse

- ☐ Clean, well-kept
☒ Old generator part stored on site
☐ Waste oil stored on site
☐ Apparent oil spills

*** Waste Oil Disposal**

- ☐ Waste oil blending system
☒ Waste oil incinerator
☐ Drum or tank storage for waste oils

*** Life, Health, & Safety**

- ☐ Code Compliant
☒ Low risk
☐ Medium risk
☐ High risk
☐ Potential for loss of life

Electrical Distribution Line Evaluation

Overhead Distribution System

* Pole type

- ☐ Fully treated poles
- ☐ Butt treated poles
- ☐ Native pole (trees)

* Pole installation

- ☐ Proper depth (can be determined by the manufacture's mark or button on pole)
- ☐ Within 12 inches of recommended depth
- ☐ Within 24 inches of recommended depth
- ☐ Greater than 24 inches of recommended depth

* Pole alignment

- ☐ Poles straight
- ☐ Poles leaning less than 10°
- ☐ Poles leaning greater than 10°

* Distribution voltage

- ☒ =>7200 volts
- ☐ 2400 volts
- ☐ 480/277 volts
- ☐ 208/120 volts

* Anchors

- ☐ Properly installed (<12 inches of the anchor rod exposed)
- ☐ 12 - 24 inches of the anchor rod exposed
- ☐ >24 inches of the anchor rod exposed

* Primary conductor

- ☐ Appears properly installed (sag, conductor size, etc)
- ☐ Improperly installed (conductor needs resagging, etc)

* Service conductor

- ☐ Appears properly installed (sag, conductor size, etc)
- ☐ Improperly installed (conductor needs resagging, etc)

*** Meter installation**

- ☐ Appears to be properly installed (height, grounding, etc)
- ☒ Improperly installed (height, no ground, etc)

*** Meter Condition Residential & Commercial**

- ☐ Good (appears in good condition)
- ☐ Fair (minor corrosion)
- ☒ Poor (major corrosion, needs replacing)

*** Over all condition of the system**

- ☐ Excellent (no repairs needed)
- ☒ Good (minor repairs, re-sag guys, re-sag service drops, etc.)
- ☐ Poor (major repairs needed, pole, guy, conductor, meter replacement, etc)

Underground Distribution System

*** Primary conductor**

- ☒ Appears to be properly installed
- ☐ Exposed conductor

*** Transformers**

- ☒ Appears to be properly installed
- ☐ Improperly installed (no pad, leaning, etc)

*** Service conductor**

- ☒ Appears to be properly installed
- ☐ Exposed conductor

Operator Proficiency

* Meter Reading

- ☒ Excellent
- ☐ Good
- ☐ Acceptable
- ☐ Unacceptable

* Daily Logs

- ☐ Excellent
- ☒ Good
- ☐ Acceptable
- ☐ Unacceptable

* Routine Maintenance

- ☐ Excellent
- ☒ Good
- ☐ Acceptable
- ☐ Unacceptable

* Scheduled Maintenance

- ☐ Excellent
- ☒ Good
- ☐ Acceptable
- ☐ Unacceptable

* Maintenance Planning

- ☐ Excellent
- ☒ Good
- ☐ Acceptable
- ☐ Unacceptable

Waste Heat Recovery

* Waste Heat Recovery Operational

☒ Yes

☐ No

List current users

School , Clinic, Professional Bldg , Power Plant, 3 Apartment bldgs , AHA Office

* BTU/Hr Meter

☒ Yes

☐ No

* Additional Waste Heat Available

☒ No

☐ Yes

List Potential New Users

System Information

Supply / Return Delta T **10deg F**

Estimate of current annual heating fuel gallons displaced

Unknown- work being completed

Estimate of potential annual heating fuel gallons displaced

None

Existing Heat Sales Agreement(s) **School , Clinic, Prof Bldg, 3 Apartment Bldgs, AHA Office**

General Questions

Use separate sheet(s) to answer these questions.

1. If records are available, indicate the number, duration, and causes of all forced outages during the last 12 months. If records are not available, provide whatever reasonable estimates available from utility personnel regarding outages number, duration, and causes. **Not Available**

ALASKA ENERGY AUTHORITY

VILLAGE POWER SYSTEM INVENTORY

DATE	Sept 15, 2012	TIME START	7:00a	TIME END	1:00p
COMMUNITY	King Cove	UTILITY	King Cove Electric Dept		
OWNERSHIP	City of King Cove	CONTACT	George Simmons		
OPERATOR	George Simmons	PHONE	907-497-2537		

	G-1	G-2	G-3	G-4	G-5
ENGINE MAKE	Caterpillar	Caterpillar	Caterpillar	Caterpillar	
ENGINE MODEL	3512	3512	3456	3456	
ENGINE RPM	1200RPM	1200RPM	1800 RPM	1800 RPM	
SERIAL NUMBER	LLA01013	67Z00919	7WG04631	7WG04632	
GOVERNOR TYPE	Caterpillar Electronic	Woodward	Caterpillar Electronic	Caterpillar Electronic	
MODEL ACTUATOR	--	8250-565	--	--	
MODEL SPEED CONTROL	--	9905-068	--	--	
DC VOLTAGE	24VDC	24VDC	24VDC	24VDC	
UNIT CIRCUIT BREAKER	GE SSHD20B220	GE SHD20B220	GE SHD08B208	GE SHD08B208	
TYPE/AMP/VOLT	2000A/ 600V	2000A / 600V	800A / 600V	800A/ 600V	
CURRENT HOURS	9343	4529	1450	8367	
GENERATOR MAKE	Kato	Caterpillar	Caterpillar	Caterpillar	
GENERATOR MODEL #	AA28082000	SR4	LC6	3456	
GENERATOR SERIAL #	19885	VA00659	G6B02839	G6B0047	
GENERATOR CAPACITY (kW)	1050kW	650kW	500kW	500kW	
GENERATOR VOLTAGE	480	480	480	480	
VOLTAGE REGULATOR, MAKE & MODEL	Caterpillar 314 7755	Caterpillar 314 7755	Caterpillar 235-5725-03	Caterpillar 234-5-5725-03	
PARALLEL SWITCH GEAR (Y or N)	Yes	Yes	Yes	Yes	
kWh METER(Yes or No)	Yes				
POWERHOUSE kWh METER TYPE	Satec				
CATALOG # or TYPE	PM172E				
DEMAND ?					
CT RATIO	3000:5				
STATION SERVICE METER (Yes or No)	Yes				
STATION SERVICE METER TYPE	Satec				
CATALOG # or TYPE	PM172E				
BATT. CHARGER/TYPE/MODEL	SENS NRG24-20-RCLS				
FUEL DAY TANK TYPE	No day tank				
PUMP #	--				
MOTOR #	--				
FUEL DAY TANK METER	Incon TS750				
FIRE PROTECTION TYPE/OPERATIONAL?	HFC-227 System Fully Functional				
ORIGINAL CONTRACTOR	AEA				